

Remarks

Currently pending in the application are claims 30 and 45-48.

Specification

The Examiner requested the disclosure of claim 7 in PCT/EP04/51796 be added to the specification. Applicants have amended the specification as the Examiner requested.

35 U.S.C. § 103

The Examiner rejected claims 30 and 45-48 under 35 U.S.C. § 103(a) as being unpatentable over Marten et al. (US 2002/0040098) in view of Eichorst et al. (US 2001/0019813). Applicants traverse this rejection for the following reasons.

According to method claims 30 and 45-48 of the present application, a non-isocyanate based polyurethane product is produced by (i) mixing one or more cyclocarbonate resins with at least one nano-clay having a platelet thickness of less than $4-8 \text{ \AA}$ and an aspect ratio higher than 100 or a nanocomposite formed from the nano-clay, and with at least one hardener to form a composition; and (ii) curing the composition.

In comparison, Marten et al. teach a method of (i) mixing a cyclocarbonate resin with a polyamine; (ii) curing the mixture to form a product; and (iii) then adding an additive (F) (such as those described in column 15, lines 45-53) to the fully cured product. In particular, "[t]he incorporation of additives (F) into the fully reacted [product] comprising components (A) to (E) is generally carried out using forcing mixers" *US Pat. No. 5,847,027* at col. 15, ll.54-56. Thus, Applicants method is clearly distinguished from the method taught in Marten et al. since the nano-clay (or nanocomposite) in Applicants method is incorporated prior to crosslinking allowing the

cured polymeric material to exhibit enhanced physicochemical and mechanical properties. *See US 2007/0135588* at [0051].

Adding Eichorst et al. to Marten et al. does not bring one skilled in the art closer to Applicants claimed method. Eichorst et al. has been added for teaching the addition of specific platelets of clay particles into a sulfonated isocyanate-based polyurethane binder. The clay platelets are taught to be 10 Å thick with an aspect ratio of 50. Thus, Marten et al. combined with Eichorst et al. does not lead one to a method of forming a non-isocyanate based polyurethane by mixing one or more cyclocarbonate resins with at least one natural or synthetic, modified or unmodified nano-clay having a platelet thickness between 4-8 Å and an aspect ratio higher than 100 or a nanocomposite formed from the nano-clay with at least one hardener to form a composition and then curing the composition to form the non-isocyanate based polyurethane as presently claimed. Accordingly, Applicants submit that claims 30 and 45-48 are not obvious in view of the publications cited above and respectfully request the rejections under 35 U.S.C. § 103(a) be withdrawn.


Conclusion

Applicants respectfully submit that the application is now in condition for allowance, and respectfully request an issuance of a Notice of Allowance directed towards the pending claims.

Should any fee be due in connection with the filing of this document, the Commissioner for Patents is hereby authorized to deduct said fee from Huntsman Corporation Deposit Account No. 08-3442.

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Respectfully Submitted,



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Date: 12/2/10